Investigating the correlation between personal characteristics and health status of Community-Living Elders and Intensity of Fear of Falling

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ABSTRACT: Fear of falling is a risk factor for falling in older adults. The present study aims to investigate the correlation between fear of falling and personal and health characteristics of community-living elders. The present study conducted on a sample of 200 elders residence of Tabriz aged 60 to 84 (mean age= 64/86±4/011). Using FES-I (Falls Efficacy Scale-International) questionnaire, the correlation between the intensity of fear of falling and variables of gender, history of falling, history of chronic musculoskeletal disorders, dependence in daily activities and living arrangement was investigated using independent t-Tests. Educational level and economic income using one-way analysis of variance (ANOVA) and Tukey test, Self-evaluation of perceived general health using the Spearman correlation coefficient. In the present study, mean scores of fear of falling in women, history of falling, poor perceived general health, history of musculoskeletal disorders, low economic income, dependence in daily activities and living alone were higher (p < 0.05) and there was no significant correlation between fear of falling and educational level (p>0.05). Fear of falling is associated with personal and health characteristics of older adults. Therefore, screening elders stricken with fear of falling regarding their personal and health characteristics, and using protective measures required to reduce the above-mentioned phenomenon in the elders seem to be essential.

Key words: Fear of falling, demographic, health, characteristics, elder

INTRODUCTION

Injuries resulting from falling are the leading cause of unintentional injury-related deaths among the elders (Rubenstein, 2006). However, in various studies, fear of falling is considered as an important factor contributing to the incidence of falling among elders (Friedman, 2002). Fear of falling is defined as low self-confidence in the sense of non-occurrence of falling during daily activities (Tinetti et al., 1990), and different studies have reported a prevalence of 20 to 85 percent in the elders (Zijlstra et al., 2007; Scheffer et al., 2008). Fear of falling causes physical, functional, psychological and social changes in elders people (Scheffer et al., 2008). If the elders stricken with fear of falling are identified, this phenomenon can be reduced in them by using clinical interventions such as training programs (Vellas et al., 1997), and consequently, falling and its numerous side effects including physical, mental and social impairments, economic costs and social damages incurred to
individual, family members and society can be avoided by health care team (Vellas et al., 1997; Zijlstra et al., 2007; Scheffer et al., 2008). The present study aims to investigate the Correlation between personal and health characteristics of community-living elderly people and fear of falling to identify older adults at risk of falling.

METHODS

The present study was conducted on 200 elderly people residence of Tabriz aged 60 to 84 in 2011. The present study was conducted after the ethical permission from the developers of the FES-I tool. Participants were selected from the elders referred to the Retirement Center (Tabriz, Iran) using convenience sampling method. At first, all participants completed the written informed consent form, and the researcher described the objectives of the study for each of the subjects. Then, the participants were asked to fill the questionnaires using two methods of self-reporting and structured interview (if required). To measure the fear of falling the FES-I was employed in this study. This tool, developed by Yardley et al. (2005), is a self-report questionnaire with 16 items. The responding form for this questionnaire was arranged in a four-point Likert type scale as 1(Not at all concerned), 2(Somewhat concerned), 3(Fairly concerned), 4(Very concerned). The minimum and the maximum possible scores are 16 (lack of fear of falling) and 64 (very severe fear of falling), respectively. The questionnaire was first translated, its psychometric measures were evaluated and its reliability and validity were confirmed. Then, The correlation between fear of falling and gender, educational level, history of falling in the previous year, history of chronic musculoskeletal disorders, self-evaluation of general health status (how would you describe your health status? Excellent, very good, good, moderate, and poor), financial income, living arrangement dependence on others to perform daily activities was assessed.

Statistical Analysis

Comparison of mean FES-I score with variables of gender, history of falling in the previous year, history of chronic musculoskeletal disorders, dependence on others to perform daily activities and living arrangement was performed using independent t-Test test. The variables of educational level and monthly income using ANOVA and Tukey's Post Hoc test, and self-perception of health status were investigated using Spearman correlation coefficient, respectively. Data were analyzed using the statistical package of SPSS (version 11.5). The data are presented as frequency (percent) and mean (± SD) for qualitative and quantitative variables, respectively. A p value < 0.05 was set as significance level for all statistical analyses of this study.

RESULTS

The present study involved a sample of 200 elder (60 to 84 years old) with an average age of 64/86±4/011. Table 1 shows the distribution of this population in terms of age, gender, educational level, living arrangement, dependence in daily activities, fear of falling, history of falling in the previous year, history of chronic musculoskeletal disorders, self-perception of health status, and monthly income. Table 2 shows mean scores and standard deviation of FES-I in accordance with above-mentioned characteristics.

DISCUSSION

The present study aims to investigate the correlation between the intensity of fear of falling and some personal and health characteristics such as gender, educational level, dependence on others to perform daily activities, living arrangement (living alone or with others), history of falling, history of musculoskeletal disorders, self-evaluation of general health status, and economic income of the elders.

Various studies suggest that fear of falling is associated with gender, so that fear of falling in women is more than that in men (Arfken et al. 1994; Zijlstra et al. 2007). In the present study, there was significant difference between mean scores of tool and gender between two male and female groups, so that mean scores of fear of falling in women were higher than those in men (p=0.001).

Various studies have suggested that fear of falling is higher in people living alone (Boyd and Stevens, 2009; Fletcher and Hirdes, 2004). In the present study, there was significant difference between two groups of
people who lived alone and those who lived with others, so that mean scores of fear of falling in people living alone were higher than those living with others (p=0.036).

In a study conducted by Suzuki et al (2002), they indicated that fear of falling affects the person’s dependence in daily activities. In a study conducted by Ulus et al. (2012), fear of falling in people fulfilling the daily activities with the help of others was higher, compared with those not needing help. In the present study, there was significant difference between the scores of fear of falling and dependence of the subject in daily activity, so that mean scores of fear of falling in people who ask others’ help for performing daily activities were higher than those not needing help (p=0.001).

Studies conducted by Boyd and Stevens (2009), Zelistra et al. (2007) and yardley et al. (2005) suggested that fear of falling among people with a previous history of falling is higher than those having no history of falling. In the present study, some results similar to these studies were obtained, so that there was significant difference between two groups of people who had a history of falling and those who did not have any history of falling, so that mean score of fear of falling in people having a history of falling during past 12 months was higher than those having no history of falling during this time (p=0.036).

Studies conducted by Zelistra et al. (2007), Latch (2005) and Ulus et al. (2012) suggested that fear of falling in people evaluating their general health status as poor is high. Findings of the present study showed a significant correlation between the scores of fear of falling and self-evaluation of general health status, so that mean scores of fear of falling in the elders evaluating their general health status as poor were higher (p<0.001) and (r=0.321).

Zelistra et al. (2007) suggested that there is no significant difference between the intensity of fear of falling and educational level. This finding was confirmed in the present study (p=0.078).

Findings of the present study and related studies show that the intensity of fear of falling in the elders is associated with their personal and health characteristics. Falling and fear of falling are both a threat to each other. Therefore, identifying the elderly stricken with severe fear of falling regarding their personal and health characteristics as a population under the risk of falling and implementing appropriate interventions for the elderly can reduce the risk of their fallings.

Table 1. Summary statistics for the study participant characteristics (n=200).

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>group</th>
<th>F (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Female</td>
<td>26(13%)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>174(87%)</td>
</tr>
<tr>
<td>Age</td>
<td>≤ 62 year</td>
<td>70(35%)</td>
</tr>
<tr>
<td></td>
<td>63- 66 year</td>
<td>74(37%)</td>
</tr>
<tr>
<td></td>
<td>≥ 67 year</td>
<td>56(28%)</td>
</tr>
<tr>
<td>Education level</td>
<td>Elementary</td>
<td>79(39.5%)</td>
</tr>
<tr>
<td></td>
<td>middle school</td>
<td>31(15.5%)</td>
</tr>
<tr>
<td></td>
<td>High school</td>
<td>45(22.5%)</td>
</tr>
<tr>
<td></td>
<td>college</td>
<td>45(22.5%)</td>
</tr>
<tr>
<td>Living arrangement</td>
<td>Alone</td>
<td>14(7%)</td>
</tr>
<tr>
<td></td>
<td>With other</td>
<td>186(93%)</td>
</tr>
<tr>
<td>Dependence in doing daily activities</td>
<td>Dependent</td>
<td>13(6.5%)</td>
</tr>
<tr>
<td></td>
<td>independent</td>
<td>187(93.5%)</td>
</tr>
<tr>
<td>Falls history in past year</td>
<td>Yes</td>
<td>26(13%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>174(87%)</td>
</tr>
<tr>
<td>Chronic muscular-skeletal</td>
<td>Yes</td>
<td>73(36.5%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>127(63.5%)</td>
</tr>
<tr>
<td>self-perception general health status</td>
<td>Excellent</td>
<td>29(14.5%)</td>
</tr>
<tr>
<td></td>
<td>Very good</td>
<td>23(11.5%)</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>61(30.5%)</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>81(40.5%)</td>
</tr>
<tr>
<td></td>
<td>Bad</td>
<td>6(3%)</td>
</tr>
<tr>
<td>Monthly economic income</td>
<td>&lt; 400 dollars</td>
<td>12(6%)</td>
</tr>
<tr>
<td></td>
<td>400- 600 dollars</td>
<td>94(47%)</td>
</tr>
<tr>
<td></td>
<td>&gt; 600 dollars</td>
<td>94(47%)</td>
</tr>
</tbody>
</table>
Table 2. The correlation FES-I scores with elders demographic and health characteristics (n=200).

<table>
<thead>
<tr>
<th>variables</th>
<th>Mean(SD)*</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td>.001</td>
</tr>
<tr>
<td>Female</td>
<td>7.69(3.76)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>5.90(2.38)</td>
<td></td>
</tr>
<tr>
<td>Living arrangement</td>
<td></td>
<td>.036</td>
</tr>
<tr>
<td>Live alone</td>
<td>7.37(3.82)</td>
<td></td>
</tr>
<tr>
<td>Live With other</td>
<td>6.04(2.54)</td>
<td></td>
</tr>
<tr>
<td>Dependent in daily activity</td>
<td></td>
<td>.001</td>
</tr>
<tr>
<td>Dependent</td>
<td>8.55(3.74)</td>
<td></td>
</tr>
<tr>
<td>independent</td>
<td>5.96(2.49)</td>
<td></td>
</tr>
<tr>
<td>Falls history in past year</td>
<td></td>
<td>.036</td>
</tr>
<tr>
<td>Yes</td>
<td>9.69(3.67)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>8.00(3.81)</td>
<td></td>
</tr>
<tr>
<td>Monthly economic income</td>
<td></td>
<td>.026</td>
</tr>
<tr>
<td>&lt; 400 dollars</td>
<td>8.06(3.82)</td>
<td></td>
</tr>
<tr>
<td>400-600 dollars</td>
<td>6.16(2.82)</td>
<td></td>
</tr>
<tr>
<td>&gt; 600 dollars</td>
<td>5.86(2.21)</td>
<td></td>
</tr>
<tr>
<td>Chronic musculoskeletal</td>
<td></td>
<td>.006</td>
</tr>
<tr>
<td>Yes</td>
<td>6.81(2.77)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>5.74(2.52)</td>
<td></td>
</tr>
<tr>
<td>Education level</td>
<td></td>
<td>.078</td>
</tr>
<tr>
<td>Elementary</td>
<td>6.73(3.05)</td>
<td></td>
</tr>
<tr>
<td>middle school</td>
<td>5.77(3.05)</td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>5.63(1.69)</td>
<td></td>
</tr>
<tr>
<td>college</td>
<td>5.83(2.26)</td>
<td></td>
</tr>
<tr>
<td>self-perception general health status</td>
<td>r*=0.321</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

CONCLUSIONS

In the present study, fear of falling among elder women (compare with men), history of falling (compare with non history of falling), history of musculoskeletal chronic disorders (compare with non history of musculoskeletal chronic disorders), living alone (compare with living with other), dependence on others to perform daily activities (compare with independence to perform daily activities), low income (compare with high income), and people evaluating their general health status as poor (compare with general health status as good quality) were higher. Furthermore, there was no significant correlation between fear of falling and educational level. It is recommended to investigate the methods of reducing fear of falling in the elders as a high-risk group in subsequent studies.

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REFERENCES


